

Amendments to the claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of claims:

Please amend the claims as shown in the following listing of claims.

1. (Currently Amended) A stereo camera apparatus comprising:

a main camera for taking a photograph of an object; and

a sub-camera for taking a photograph of said object from a point of view different from a point of view of said main camera, said main camera and said sub-camera being disposed with respect to each other by a predetermined spacing,

a shooting direction of said stereo camera is substantially perpendicular to said predetermined spacing in a baseline between the main camera and the sub-camera,

image processing means for calculating a three-dimensional distance distribution of said object based on a positional difference between a region in a reference image photographed by said main camera and a corresponding area in a comparative image photographed by said sub-camera to an image signal of said region,

wherein said corresponding area is searched in a striplike search area having a predetermined length which extends from a position substantially corresponding to said region, said positional difference is obtained from an area which is capable of setting said search area inside of said comparative image,

wherein optical axes of said main camera and said sub-camera are inclined toward the main camera side with a predetermined angle with respect to the shooting direction defined by each of the optical axes and the shooting direction,

wherein angles of inclination of said main camera and said sub-camera are set to be such angles that said three-dimensional distance distribution is substantially left-right symmetric with respect to the shooting direction,

wherein angles of inclination of said main camera and said sub-camera are set to be angles such that said three-dimensional distance distribution is substantially left-right symmetric with respect to a central axis of a vehicle parallel to a forward direction of the vehicle, and the shooting direction being parallel to the central axis.

2. (Cancelled)

3. (Currently Amended) ~~The stereo camera apparatus as recited in claim 1, wherein the optical axis of said sub-camera is inclined toward said sub-camera side with respect to the optical axis of said main camera.~~ A stereo camera apparatus comprising:

a main camera for taking a photograph of an object; and

a sub-camera for taking a photograph of said object from a point of view different from a point of view of said main camera, said main camera and said sub-camera being disposed with respect to each other by a predetermined spacing,

a shooting direction of said stereo camera is substantially perpendicular to said predetermined spacing in a baseline between the main camera and the sub-camera,

image processing means for calculating a three-dimensional distance distribution of said object based on a positional difference between a region in a reference image photographed by said main camera and a corresponding area in a comparative image photographed by said sub-camera to an image signal of said region,

wherein said corresponding area is searched in a striplike area having a predetermined length which extends from a position substantially corresponding to said region,

said positional difference is obtained from an area which is capable of setting search area inside of said comparative image,

wherein said main camera and said sub-camera are inclined toward the main camera side with a predetermined angle with respect to the shooting direction defined by each of the optical axes and the shooting direction,

wherein angles of inclination of said main camera and said sub-camera are set to be such angles that said three-dimensional distance distribution is substantially left-right symmetric with respect to the shooting direction,

wherein the optical axis of said sub-camera is inclined toward said sub-camera side with respect to the optical axis of said main camera,

wherein the optical axis of said sub-camera is inclined toward said sub-camera side with respect to the optical axis of said main camera in order to provide a search margin in a comparative image photographed by said sub-camera to enable detection of an infinite distance corresponding point positioned at an end of said sub-camera side in a reference image taken by said main camera,

wherein angles of inclination of said main camera and said sub-camera are set to be angles such that said three-dimensional distance distribution being substantially left-right symmetric with respect to a central axis of a vehicle parallel to the forward direction of the vehicle and said shooting direction being parallel to the central axis.

4. (Cancelled)

5. (Previously Presented) The stereo camera apparatus as recited in claim 1, further comprising:

a camera stay for mounting said cameras thereon, wherein a longitudinal direction of said camera stay is substantially perpendicular to the shooting direction.

6. (Previously Presented) The stereo camera apparatus as recited in claim 1, wherein each of said cameras is a CCD camera.

7. (Previously Presented) The stereo camera apparatus as recited in claim 1, wherein said cameras are mounted in the vicinity of a rear-view mirror of a vehicle, said cameras taking photographs of views outside the vehicle.

8. (Canceled)

9. (Currently Amended) ~~The stereo camera apparatus as recited in claim 1,~~ A stereo camera apparatus comprising:

a main camera for taking a photograph of an object; and

a sub-camera for taking a photograph of said object from a point of view different from a point of view of said main camera, said main camera and said sub-camera being disposed with respect to each other by a predetermined spacing,

a shooting direction of said stereo camera is substantially perpendicular to said predetermined spacing in a baseline between the main camera and the sub-camera,

image processing means for calculating a three-dimensional distance distribution of said object on a positional difference between a region in a reference image photographed by said main camera and a corresponding area in a comparative image photographed by said sub-camera to an image signal of said region,

wherein said corresponding area is searched in a striplike area having a predetermined length which extends from a position substantially corresponding to said region,

said positional difference is obtained from an area which is capable of setting search area inside of said comparative image,

wherein said main camera and said sub-camera are inclined toward the main camera side with a predetermined angle with respect to the shooting direction defined by each of the optical axes and the shooting direction,

wherein angles of inclination of said main camera and said sub-camera are set to be such angles that said three-dimensional distance distribution is substantially left-right symmetric with respect to the shooting direction,

wherein a first acute angle defined between said optical axis of said main camera and the baseline is smaller than a second acute angle defined between said optical axis of said sub-camera and the baseline;

wherein angles of inclination of said main camera and said sub-camera are set to be angles such that said three-dimensional distance distribution being substantially left-right symmetric with respect to a central axis of a vehicle parallel to the forward left-right symmetric with respect to a central axis of a vehicle parallel to the forward direction of the vehicle, and said shooting direction being parallel to the central axis.

10. (Currently Amended) The stereo camera apparatus as recited in claim 9,

wherein the first acute angle is ~~larger~~ smaller than the second acute angle in order to provide a search margin in a comparative image photographed by said sub-camera to enable detection of an infinite distance corresponding point positioned at an end of said sub-camera side in a reference image taken by said main camera.

11.-12. (Cancelled)

13. (Previously Presented) The stereo camera apparatus as recited in claim 3, wherein the optical axis of said sub-camera is inclined toward said sub-camera side with respect to the optical axis of said main camera in order to provide a search margin in a comparative image photographed by said sub-camera to enable detection of an infinite distance corresponding point positioned at an end of said sub-camera side in a reference image taken by said main camera.

14.-20. (Cancelled)

21. (Previously Presented) The stereo camera apparatus as recited in claim 1,

wherein said predetermined length of said search area is longer than length of said region.

22. (Currently Amended) ~~The stereo camera apparatus as recited in claim 1,~~ A stereo camera apparatus comprising:

a main camera for taking a photograph of an object; and

a sub-camera for taking a photograph of said object from a point of view different from a point of view of said main camera, said main camera and said sub-camera being disposed with respect to each other by a predetermined spacing,

a shooting direction of said stereo camera is substantially perpendicular to said predetermined spacing in a baseline between the main camera and the sub-camera,

image processing means for calculating a three-dimensional distance distribution of said object based on a positional difference between a region in a reference image photographed by said main camera and a corresponding area in a comparative image photographed by said sub-camera to an image signal of said region,

wherein said corresponding area is searched in a striplike search area having a predetermined length which extends from a position substantially corresponding to said region, said positional difference is obtained from an area which is capable of setting said search area inside of said comparative image,

wherein optical axes of said main camera and said sub-camera are inclined toward the main camera side with a predetermined angle with respect to the shooting direction defined by each of the optical axes and the shooting direction,

wherein angles of inclination of said main camera and said sub-camera are set to be such angles that said three-dimensional distance distribution is substantially left-right symmetric with respect to the shooting direction,

wherein angles of inclination of said main camera and said sub-camera are set to be angles that said three-dimensional distance distribution being substantially left-right symmetric with respect to a central axis of a vehicle parallel to a forward direction of the vehicle, and the shooting direction being parallel to the central axis;

wherein said angles of inclination of said main camera and said sub-camera correspond to a displacement between a first line on said reference image and a second line on said reference image,

said first line is a line for setting a three-dimensional distance distribution, generating area on said reference image substantially symmetrical on left and right sides with respect to said first line in said reference image

said second line is a vertical line perpendicular to said optical axis of said main camera in said reference image.